

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

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Applicant's or agent's file reference <b>1381 WO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. <b>PCT/BE 03/00211</b>	International filing date ( <i>day/month/year</i> ) <b>08.12.2003</b>	Priority date ( <i>day/month/year</i> ) <b>10.12.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>B22D41/28</b>		
Applicant <b>VESUVIUS GROUP S.A. et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  <b>12.05.2004</b>	Date of completion of this report  <b>01.02.2005</b>
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</b>	Authorized Officer  <b>Noske, W</b>  Telephone No. <b>+49 89 2399-8448</b>



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/BE 03/00211**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-4 as originally filed

**Claims, Numbers**

1-9 received on 06.01.2005 with letter of 06.01.2005

**Drawings, Sheets**

1/2, 2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is :

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/BE 03/00211**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/BE 03/00211

1. D1 US-A-5 695 674, Figs. 1-5,  
discloses a refractory plate 8 having upper and lower surfaces and a plane protruberance in the form of a frustroconical tab raising from a side portion of one of the said surfaces; the plate 8 is provided with a throughhole forming a casting channel and passing through the center of the said excentrically located tab. The plane surface (without protruberance) is "able to form a sealing surface, at least around the orifice" formed by the casting channel, "with a face matching the face of a(n adjoining) "sliding plate".  
The opposed surface (from where the protruberance rises) is able or "adapted to rest in a housing".  
The plane surface of the protruberance is able or "adapted to form a sealing surface, at least around the orifice, with a matching face of a refractory nozzle and to act as a guiding surface for the refractory nozzle".
2. The sole feature of claim 1 which departs from D1 is the "tip-"shape of the plane surface (= "third surface" of claim 1) of the protruberance. Novelty is thus given.
3. An inventive step lying in the said "tip-" shape cannot be acknowledged in the absence of any effect which can be attributed to the "tip-" shape independently from further features of the "device for the insertion and/or removal of a nozzle for a casting installation combined with a sliding plate flow-control device" for or in which device the claimed refractory plate is to be used according to claim 1, which further features do, however, not appear in a non-optional form in claim 1.  
The subject-matter of claim 1 does not involve an inventive step.
4. The features mentioned in the dependent claims 2-9 are of no importance for solving any problem with respect to the known plate 8 of D1 in view of what was mentioned above under point 3. Their subject-matter thus lacks an inventive step.
5. With respect to the lack of inventive step further remarks are made as follows:  
The claims define a refractory plate which is intended to form a portion of a bigger device for exchanging a casting nozzle and regulating flow of cast metal through the device.  
The claimed plate is defined with reference to its function within the complete device and to other portions of the device which are necessary to the function (e. g. mobile plate and refractory tube, the claimed plate and each of the said other portions claimed to have "matching faces", housing claimed to form a "rest" for a portion of the claimed plate). However, the said other portions are neither disclosed nor defined in the application. Without this, the claimed invention is not clear and any effect of any claimed novel features cannot be ascertained. It is thus not possible to ascertain an inventive step which is thus not acknowledged.

# Claims

1. Refractory plate for a device for the insertion and/or removal of a nozzle for a casting installation combined with a sliding plate flow-control device comprising
  - a) a first surface (1) provided with an orifice (2) defining the entry of a casting channel (3) through the plate and able to form a sealing surface, at least around the orifice (2), with a face matching the face of a sliding plate of the flow-control device;
  - b) a second surface (4) adapted to rest in housing of the device and provided with a plane protuberance (5) circumscribing the casting channel (3) and extending through the bottom wall of the housing, and
  - c) a tip-shaped third surface (6) defined by the plane surface of the protuberance (5) provided with an orifice (7) defining the exit of the casting channel (3) through the plate, the surface (6) being adapted
    - to form a sealing surface, at least around the orifice (7), with a matching face of a refractory nozzle in casting position, and
    - to act as guiding surface for the refractory nozzle from an introduction position to a casting position, the tip (8) being directed towards the introduction position of the refractory nozzle.
2. Refractory plate according to claim 1, characterized in that the third surface (6) is provided with a chamfer at the end of the tip (8).
3. Refractory plate according to claim 1 or 2, characterized in that the third surface (6) is provided with a chamfer on the side opposite to the end of the tip (8).
4. Refractory plate according to claim 1, characterized in that the third surface (6) is oval-shaped.
5. Refractory plate according to claim 1, characterized in that the third surface (6) is triangle shaped.
6. Refractory plate according to claim 1, characterized in that the third surface (6) is egg-shaped.
7. Refractory plate according to claim 1, characterized in that it is provided with inert gas supplying means.
8. Refractory plate according to claim 7, characterized in that the inert gas supplying means comprises a gas feeding line (9) and a circular groove (10) circumscribing the exit orifice (7) of the casting channel in the third surface (6).
9. Refractory plate according to claim 1, characterized in that the third surface (6) is provided with a second orifice (11) close to the end of the tip (8).